

Notice of Allowability

Application No.

10/828,415

Examiner

Alicia M. Harrington

Applicant(s)

AMANAI, TAKAHIRO

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to after final amendment filed on 12/7/05.
2. ☒ The allowed claim(s) is/are 2,4,6-9 and 11-18.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Allowable Subject Matter

1. Claims 2, 4, 6-9, 11-18 are allowed.

2. The following is an examiner's statement of reasons for allowance:

Regarding claim 2, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in the independent claims, which at least include an imaging optical system comprising a first lens have positive power, second lens having a negative power, third lens having positive power, fourth lens having negative power, the second and third lens cemented together wherein the aperture stop is arranged on the object side of the first lens as claimed.

Regarding claim 4, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in the independent claims, which at least include an imaging optical system comprising a first lens have positive power, second lens having a negative power, third lens having positive power, fourth lens having negative power, the second and third lens cemented together wherein wherein the aspherical surface of the fourth lens satisfies the claimed condition where ϕ_m represents a power at a position of a maximum light height and ϕ_p represents a power at a paraxial position.

Regarding claim 6, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features which include an imaging optical system comprising a first lens have positive power, second lens having a negative power, third lens having positive power, fourth lens having negative power, the second and third lens cemented together wherein where f represents a focal length of the whole optical system and f_1 represents a focal length of the first lens and satisfies the claimed condition.

Regarding claim 7, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features which include an imaging optical system comprising a first lens have positive power, second lens having a negative power, third lens having positive power, fourth lens having negative power, the second and third lens cemented together wherein r_2f represents a radius of curvature of the second lens on the object side and r_3r represents a radius of curvature of the third lens on the image side and satisfying the claimed condition.

Regarding claims 8 and 14, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which at least include wherein the composite focal length of the cemented lens consisting of the

first, the second and the third lens, f_4 represents the focal length of the fourth lens, and f represents the focal length of the whole optical system satisfying the claimed condition. Regarding claims 9, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which at least include an imaging optical system comprising a first lens have positive power, second lens having a negative power, third lens having positive power, fourth lens having negative power, second and third lens cemented together wherein the where EXP represents a length from an object plane to an exit pupil and f represents a focal length of the whole optical system and satisfying the claimed condition.

Regarding claim 11 and 15-17, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a - combination of all the claimed features as presented in independent claims, which at least include where the F_{no} represents the F-number fully opened and P represents the pitch of imaging element satisfying the claimed condition.

Regarding claim 12, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which at least include an imaging optical system satisfying comprising a first lens have positive power, second

lens having a negative power, third lens having positive power, fourth lens having negative power, the second and third lens cemented together wherein where TL represents an entire length of the optical system and ML represents a minimum axial thickness of plastic lenses and satisfying the claimed condition.

Regarding claims 13 and 18, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which at least include an imaging optical system comprising a first lens have positive power, second lens having a negative power, third lens having positive power, fourth lens having negative power, the second and third lens cemented together wherein R_c represents a radius of curvature of a cemented surface and R_{ave} represents an average value of a radius of curvature of an entrance surface and a radius of curvature of an exit surface satisfying the claimed conditions.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M. Harrington whose telephone number is 571 272 2330. The examiner can normally be reached on Monday - Thursday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571 272 2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alicia M Harrington
Primary Examiner
Art Unit 2873

AMH

